

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1-2. (cancelled)

3. (new) Spindle (1), comprising:

an outer case (1c) terminating at one end with a flange (7) having an aperture (6);

a moving part (2) located co-axially within the outer case and extending through the aperture;

a tool-holding collet (3) fixed to the moving part, the collet outwardly projecting from an end-most portion of the moving part;

an air directing means (8) attached to an exterior surface of the flange at the aperture and surrounding the end-most portion of the moving part,

an end-most portion of the collet extending outwardly beyond an end-most portion of the air directing means;

an aerostatic bush generating a jet of compressed air that forms a cushion of air circulating continuously along air gaps (5) located between the moving part and the aerostatic bush and exits out of the case via a path defined by the air directing means at an outlet located intermediate the end-most portion of

the air directing means and the end-most portion of the moving part,

the moving part (2) supported by the cushion of air generated by a jet of compressed air, wherein,

the air directing means (8) is shaped to collect the air exiting out of the outlet in a first direction and to redirect the exiting air from the first direction to a second direction with an outward direction of motion (E) tangential to the end-most part (3t) of the collet, the redirected exiting air moving roughly parallel to an axis of the spindle (1).

4. (new) The spindle according to claim 3, wherein,  
said directing means is a shaped cap (8) fixed to the outside of the said flange (7), co-axially with respect to the tool-holding collet (3), the cap extending beyond outer most surfaces of the flange and of the case.

5. (new) The spindle according to claim 4, wherein,  
the end-most part (3t) of the collet comprises tapered converging sides, and

the air directing means (8) is shaped to collect the air exiting out of the outlet in the first direction and to redirect the exiting air from the first direction to the second direction with an outward direction of motion (E) tangential to the tapered converging sides of the end-most part of the collet.

6. (new) The spindle according to claim 5, wherein,  
an air space is defined between the air directing means  
(8) and the end-most portion of the moving part,  
the air space has a decreasing cross section, as  
measured orthogonal to the axis and approaching from the flange  
toward the outlet.

7. (new) The spindle according to claim 3, wherein,  
said directing means is a shaped cap (8) fixed to the  
outside of the said flange (7), co-axially with respect to the  
tool-holding collet (3), the cap having a first cylindrical  
portion and an attached second converging tapered portion, the  
cap extending beyond outer most surfaces of the flange and of the  
case.

8. (new) The spindle according to claim 7, wherein,  
the end-most part (3t) of the collet comprises  
converging tapered sides, and

the air directing means (8) is shaped to collect the  
air exiting out of the outlet in the first direction and to  
redirect the exiting air from the first direction to the second  
direction with an outward direction of motion (E) tangential to  
the converging tapered sides of the end-most part of the collet.

9. (new) The spindle according to claim 8, wherein,

an air space is defined between the air directing means (8) and the end-most portion of the moving part,

the air space has a decreasing cross section, as measured orthogonal to the axis and approaching from the flange toward the outlet along the second tapered converging portion of the cap.

10. (new) The spindle according to claim 3, wherein the air directing means directs the air exiting the outlet in the second direction that is converging toward the axis as the air exits the outlet.

11. (new) Spindle (1), comprising:

an outer case (1c) terminating at one end with a flange (7) having an aperture (6);

a moving part (2) located co-axially within the case and extending outwardly through the aperture;

a tool-holding collet (3) fixed to the moving part, the collet outwardly projecting from an end-most portion of the moving part;

an air director (8) attached to an exterior surface of the flange at the aperture, outwardly extending from the aperture, and surrounding the end-most portion of the moving part,

an end-most portion of the collet extending outwardly beyond an end-most portion of the air director;

an aerostatic bush arrangement generating a jet of compressed air forming a cushion of air circulating continuously along air gaps (5) located between the aerostatic bush arrangement and the moving part, the compressed air exiting out of the case via a path defined by the air director at an outlet located intermediate the end-most portion of the air directing means and the end-most portion of the moving part, wherein,

the air director (8) is shaped to collect the air exiting out of the outlet and to redirect the air exiting from the outlet from a first direction parallel to the axis to a second direction with an outward direction of motion (E) tangential the end-most part (3t) of the collet and converging toward the axis as the air exits the outlet.

12. (new) The spindle according to claim 11, wherein, said air director is a shaped cap (8) fixed to the outside of the said flange (7), co-axially with respect to the tool-holding collet (3), the cap extending beyond outer most surfaces of the flange and of the case.

13. (new) The spindle according to claim 12, wherein, the end-most part (3t) of the collet comprises tapered converging sides, and

the air director (8) is shaped to collect the air exiting out of the outlet in the first direction and to redirect the exiting air from the first direction to the second direction with an outward direction of motion (E) tangential to the tapered converging sides of the end-most part of the collet.

14. (new) The spindle according to claim 13, wherein, an air space is defined between the air directing means (8) and the end-most portion of the moving part,

the air space has a decreasing cross section, as measured orthogonal to the axis and approaching from the flange toward the outlet.

15. (new) The spindle according to claim 11, wherein, said air director is a shaped cap (8) fixed to the outside of the said flange (7), co-axially with respect to the tool-holding collet (3), the cap having a first cylindrical portion and an attached second converging tapered portion, the cap extending beyond outer most surfaces of the flange and of the case.

16. (new) The spindle according to claim 15, wherein, the end-most part (3t) of the collet comprises converging tapered sides, and

the air director (8) is shaped to collect the air exiting out of the outlet in the first direction and to redirect the exiting air from the first direction to the second direction with an outward direction of motion (E) tangential to the converging tapered sides of the end-most part of the collet.

17. (new) The spindle according to claim 16, wherein, an air space is defined between the air directing means (8) and the end-most portion of the moving part,

the air space has a decreasing cross section, as measured orthogonal to the axis and approaching from the flange toward the outlet along the second tapered converging portion of the cap.